USPTO Customer No. 25280 Case 5319

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:	Kelly et al.
Serial Number:	09 / 976,412
Filed:	October 12, 2001
For:	**LOW CONTAMINANT WIPER**
Group Art Unit:	1771
Examiner:	Norca Liz Torres Velazquez

BRIEF ON APPEAL UNDER 37 CFR 41.37

Mail Stop Appeals
Commissioner for Patents
Post Office Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The following Appeal Brief is submitted pursuant to the Notice of Appeal filed December 12, 2005, from the Final Office Action dated July 12, 2005. This Brief is accompanied by a Petition for Extension of Time (four months), extending the period for submission to June 12, 2006.

Certificate of Transmission by Facsimile Under 37 CFR §1.8

I hereby certify that this correspondence, along with all documents referred to as being enclosed herewith, is being transmitted by facsimile to the U.S. Patent and Trademark Office on June 12, 2006, at the facsimile number listed below.

Facsimile Number: 571-273-8300.

Name: Charlotte C. Wilson, Agent for Applicant

Signature: Charlotte C. Wilson

I. REAL PARTY IN INTEREST

The above-referenced application is the subject of an assignment to Milliken & Company, located at 920 Milliken Road, Spartanburg, South Carolina 29303, which is the real party in interest.

II. RELATED APPEALS & INTERFERENCES

Appellant is not aware of any other appeal of interference that will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 5-14, 19-31, 37, and 38 have been finally rejected and are the subject of this Appeal. Claims 1-4, 15-18, and 32-36 have been cancelled.

IV. STATUS OF AMENDMENTS

Appellant made no amendments to the pending claims after the mailing of the Final Office Action dated July 12, 2005.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The independent claims that are the subject of this Appeal are Claims 5, 19, and 29.

Claims 5, 19, and 29 are each directed to a low contaminant wiper (shown in FIGS. 1, 3, and 4 as cleanroom wiper 10, 110, and 210), which is suitable for use in a cleanroom environment. The cleanroom wipers of Claims 5, 19, and 29 are made from a low contaminant textile fabric which has a machine direction and a cross-machine direction and which is formed of polyester filaments that are substantially free of inorganic ionic additives (see page 14, line 6 – page 15, line 11 of the specification).

The cleanroom wipers of Claims 5, 19, and 29 each feature different edging configurations that minimize the amount of particulate generated from the edges of the cleanroom wipers themselves. This goal is accomplished by providing one or more discontinuous fused border (or attachment) zones along one or more perimeter edges of the cleanroom wiper. The terms "discontinuous fused border zone" and "discontinuous fused attachment zone" are used interchangeably in the specification to refer to "a multiplicity of discrete bond points 34, 36 at which thermoplastic fibers, such as polyester, forming the wiper 10 have undergone localized melting, thereby fusing together upon resolidification" (page 8, lines 17-20). The discontinuous fused border zones contain a plurality of discrete fusion points formed by localized melt fusion of the filaments, the discrete fusion points being disposed within a matrix of unmelted material.

It is believed that the utilization of discontinuous fused border zones reduces the generation of particulate matter upon the application of tension in the direction parallel to such borders by allowing the applied force to be spread more evenly through the matrix formed by the interstitial (un-bonded) areas between the bond points, thereby reducing

the concentration of the force and the accompanying localized breakage of fibers. Such fiber breakage is considered contamination in a cleanroom environment and is to be avoided.

In Claim 5, the edging configuration features discontinuous fused border zones 148, 150 that are present inboard of, and that extend parallel to, at least two perimeter edges 118, 120 of the cleanroom wiper 110. The subject matter of Claim 5 is described, at least, in the specification on page 13, lines 9-16 and in FIG. 3.

In Claim 19, the edging configuration features a folded double layer border 38, 40 and a discontinuous fused attachment zone 48, 50 inboard of the folded double layer border on at least one of the perimeter edges 18, 20 of the cleanroom wiper 10. The subject matter of Claim 19 is described, at least, in the specification beginning on page 7, line 5 and continuing to page 11, line 15 and in FIGS. 1, 2, 4, and 5.

In Claim 29, the edging configuration features (i) a folded double layer border 38, 40 and a fused attachment zone (not shown) inboard of the folded double layer border on at least one of the perimeter edges 18, 20 of the cleanroom wiper 10 and (ii) a thermally sealed edge (not shown) and a discontinuous fused border zone 48, 50 extending inwardly from the thermally sealed edge on at least one other of the perimeter edges of the cleanroom wiper 10. The subject matter of Claim 29 is described, at least, in the specification on beginning on page 7, line 5 and continuing to page 11, line 15, with particular reference to page 11, lines 8-17.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 5-14, 19-31, and 37-38 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 4,888,229 to PALEY et al., US Patent 4,938,817 to LANGLEY, and US Patent 6,189,189 to MORIN et al., and further in view of US Patent 6,139,954 to DEAN et al.

B. Claims 5-14 and 19-31 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 4,888,229 to PALEY et al., US Patent to 4,938,817 to ROCKWELL, Jr., and further in view of US Patent 6,139,954 to DEAN et al.

C. Claims 37-38 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 4,888,229 to PALEY et al., US Patent to 4,938,817 to ROCKWELL, Jr., and US Patent 6,139,954 to DEAN et al., and further in view of US Patent 6,189,189 to MORIN et al.

VII. ARGUMENT

A. Claims 5-14, 19-31, and 37-38 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 4,888,229 to PALEY et al., US Patent 4,938,817 to LANGLEY, and US Patent 6,189,189 to MORIN et al., and further in view of US Patent 6,139,954 to DEAN et al.

As best understood, the Office's position is essentially as follows:

PALEY et al. discloses a wiper for reducing particulate contamination, which otherwise might result from the use of the wiper in a controlled environment, such as that maintained in a cleanroom, the wiper being of the type constructed at least partially from a thermoplastic fabric material. The wiper provides a fused border in the material along the peripheral edges of the wiper and extends inwardly into the wiper.

While PALEY teaches a plurality of fused perimeter edges, it teaches a continuous fused border zone. It fails to teach the discontinuous fused border zone with discrete fusion points formed by localized melt fusion.

LANGLEY is related to seaming spunbonded synthetic fabric and to the preparation of cleanroom garments. The reference solves the problem of contamination by microscopic fiber particles in cleanroom environments from cut edges or needle holes produced in stitching of seams of garments used in this environment and instead uses bonded seams that include folded-over edges. The reference teaches the use of ultrasonic energy and pressure in predetermined spaced intervals by means such as an embossed wheel having spaced sets of serially arranged raised regions.

Since both references are directed to cleanroom fabric products, the purpose disclosed by LANGLEY would have been recognized in the pertinent art of PALEY.

PALEY and LANGLEY fail to teach heat-setting the textile fabric at a temperature of from 180 to 300 degrees Fahrenheit.

MORIN et al. discloses a method of manufacturing a polyester textile fabric having a relatively low level of particulate contamination and high absorbency by heat-setting the fabric at a temperature of 300 °F or less. The reference teaches a method of manufacturing a textile fabric for use in a cleanroom, the method having the steps of constructing a knitted or woven fabric from polyester yarn, heat-setting the fabric at a temperature of from 180 °F to 300 °F, and cutting the fabric to form the desired article; wherein the polyester fiber has not been heated above the temperature of 300 °F.

MORIN also teaches the reduction of non-volatile residues to less than 0.005 grams/sq. meter, and even less than 0.003 grams/sq. meter as measured by short-term extraction. Since MORIN teaches the importance of having reduced non-volatile residues in a cleanroom wiper and also teaches the use of polyester yarns, it is reasonable to presume that MORIN's invention would provide polyester that is substantially free of inorganic ionic additives in order to provide a wiper with reduced non-volatile residues.

Since MORIN is also directed to wipers, the purpose disclosed by MORIN would have been recognized in the pertinent art of PALEY and LANGLEY.

The prior art citations of PALEY, LANGLEY, and MORIN are silent to the use of polyester free of inorganic additives.

DEAN teaches fiber made from polyesters used as binder fibers for nonwovens, textile and industrial yarns and fabrics. The polyester taught by DEAN does not contain antimony catalytic materials, and it teaches that these polymers are clear and non-opaque. Since it is known that polyester is usually manufactured using metallic catalysts, usually compounds of aluminum and antimony, in finite amounts, and that delusterants such as titanium dioxide are often applied to alter the appearance of the completed product, DEAN's polyester will equate to the polyester substantially free of inorganic ionic additives.

> Therefore, it would have been obvious to modify the cleanroom wiper and provide it with a polyester that does not contain any antimony catalytic materials and that is clear and non-opaque with the motivation of avoiding having particles shed from polyester wipers that contain these metallic contaminants.

As best understood, the PALEY reference is directed to a wiper for reducing particulate contamination, which otherwise might result from the use of the wiper in a controlled environment (such as a cleanroom), the wiper being of the type constructed at least partially from thermoplastic fabric material. The PALEY wiper has a continuous fused border in the material along the peripheral edges of the wiper that extends inwardly into the wiper to capture and retain any fibers severed during the process of cutting the fabric into wipers. Such loose fiber components are considered contaminants in a cleanroom environment, whether such fiber components originate from the edges of the wiping cloth or from some other portion thereof (e.g., as lint).

PALEY is unambiguous in their determination that a continuous fused edge is the solution to the problem of loose fibers from the cut edges of the wiper. PALEY teaches "providing a fused border in the material along the peripheral edges of the wiper and extending inwardly into the wiper a distance great enough to provide the fused border with sufficient area and sufficient tear strength to maintain therein segments of the material of the wiper which otherwise might be released from the peripheral edges of the wiper during use of the wiper, yet small enough to maintain pliability and absorbency in the wiper for wiping procedures" (Col. 2, lines 14-22). PALEY also discloses that, within the fused border, "all of the severed segments are captured and retained throughout the useful service life of the wiper" (Col. 3, lines 32-34). The reference further provides a

formula for determining the distance D that the fused area should cover (D = 7L, where L is the length of a relaxed loop). (Col. 3, line 47 and Col. 2, line 63)

Hence, the PALEY reference, as discussed above, not only fails to teach a discontinuous fused border zone with discrete fusion points formed by localized melt fusion, but it specifically teaches away from such a construction. Col. 3, lines 13-19 state, in pertinent part, "however, experience has shown that the localized melting of the segments is insufficient to prevent the segments from release when subjected to agitation and other manipulations common in the use of the wiper." Discontinuous fused patterning, as claimed by Appellants, is fundamentally inconsistent with the practices advocated by PALEY.

The differences between the presently claimed invention and the PALEY reference are illustrated in the Examples section of the present application, where the presently claimed invention is described as Example 1 and the PALEY reference is described as Example 3. The relevant columns of TABLE 1 and the accompanying description (both found on Page 18 of the specification) are reproduced below for convenience. It should be noted that the wiper of the present invention is listed in the Table as Wiper Style A and the PALEY wiper is listed as Wiper Style C. In the case of Wiper Style A, a discontinuous fused border was used on all four sides with a double layer (i.e., folded) border being used on the machine direction edges. (See specification, page 16, for support.) In the case of Wiper Style C (i.e., the PALEY wiper), all four edges were continuously fused with no folding.

Table 1

Wiper Style	A Machine Direction	A Cross-Machine Direction	C Machine Direction	C Cross-Machine Direction
Average Particle Count Measurement	409	1357	2875	3731
High Particle Count Measurement	936	2205	6018	7173
Low Particle Count Measurement	84	203	1020	1643
Standard Deviation	233	604	1251	1634
Statistical Mean Lower Confidence Limit (99%)	301	1078	2296	2975
Statistical Mean Upper Confidence Limit (99%)	516	1636	3454	4487

"This data is believed to confirm that the double edge construction of wiper style 'A' results in a dramatic improvement in both the average and actual number of particles generated in tension over that which is believed to have been available heretofore. Likewise, in regions where a non-folded extended border zone is utilized, the inwardly extending discontinuous fused border edge construction of wiper style 'A' provides much lower particle generation than the inwardly extending solid fused border of wiper style 'C'."

Appellant believes that this data clearly illustrates the difference between the presently claimed wiper and that produced according to the teachings of PALEY. Appellant recognizes that these differences alone, however, are insufficient to establish the patentability of the presently claimed invention, where the rejection of the claimed

invention is based on obviousness. That said, Appellants believe that no *prima facie* case of obviousness has been properly established for the reasons that will provided further herein.

To provide a teaching of discontinuous fused edges, the Office has used the teachings of LANGLEY. As discussed above, LANGLEY is related to seaming spunbonded synthetic fabric and to the preparation of cleanroom garments. The reference identifies the problem of contamination by microscopic fiber particles in cleanroom environments from cut edges or needle holes (produced in the stitching of seams of cleanroom garments) and solves this problem by using bonded seams that include folded-over edges. The reference teaches the use of ultrasonic energy and pressure in predetermined spaced intervals by means such as an embossed wheel having spaced sets of serially arranged raised regions.

LANGLEY fails to teach the production of cleanroom wipers and further fails to teach the use of polyester yarns that are substantially free of inorganic ionic additives. The Office has suggested that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the boundary edge of the wiper of PALEY and to provide discontinuous pattern bonding and also a folded double layer border, motivated by the desire to remove contamination in the form of microscopic fiber particles generated by cut edges as disclosed by LANGLEY.

Appellant finds such motivation to be suspect, since PALEY identifies the problem of particulate contamination and provides a clear solution (continuous fused edges) that is in direct opposition to Appellant's solution (discontinuous fused edges).

Moreover, the Office has turned to the MORIN reference to provide teachings of further claim limitations. MORIN teaches a method of manufacturing a polyester textile fabric to have a low level of particulate contamination and a high absorbency by heat-setting the fabric at a temperature of no higher than 300 °F. MORIN discloses that cleanroom wipers may be made of such polyester fabrics. However, MORIN fails to teach the use of a discontinuous fused border.

Appellant respectfully submits that there is insufficient motivation in the PALEY, LANGLEY, and MORIN references to combine their collective teachings in the manner proposed by the Office. In making this rejection, the Office has surmised that one of skill in the art would disregard the teachings of PALEY, which are directly on point in terms of product and problem to be solved, in favor of the teachings of LANGLEY of folded over edges and discontinuous fusing (used in conjunction with cleanrooom apparel) and of MORIN of low particle-releasing polyester fabrics. The rejection is made more untenable by the fact that MORIN's teaching of a polyester that is free of inorganic ionic additives is "presumed," rather than being specifically disclosed.

To provide a specific teaching of a polyester that is free of inorganic ionic additives, the Office further incorporates the DEAN reference into the rejection of the claims. DEAN is used to provide a teaching of a polyester yarns that are substantially free from inorganic ionic additives. The DEAN reference does, however, teach the use of metallic catalysts, such as titanium, in the production of polyester.

Column 6, lines 38-54 provide a discussion of catalysts used in the production of DEAN's polyester:

A variety of catalyst systems are useful in promoting the reaction of the glycol component and the dicarboxylic acid component. Generally, without the aid of a suitable catalyst, the polymerization reactions do not proceed at a noticeable rate. Typically a catalyst system will contain catalytic materials and catalytic inhibitors.

Catalytic Materials

Catalytic materials which are suitable for the catalyst system include, but are not limited to, materials containing titanium, manganese, zinc, cobalt, antimony, gallium, lithium, calcium, silicon, and germanium. Such catalyst systems are described in U.S. Pat. Nos. 3,907,754, 3,962,189, 4,010,145, 4,356,299, 5,017,680, 5,668,243, and 5,681,918, herein incorporated by reference in their entirety. Generally, the catalyst system of the invention comprises materials which contain titanium, manganese and/or zinc and mixtures thereof.

In contrast, Appellant's disclosure specifies that "the wipers of the present invention are formed from polymeric fibers incorporating very low levels of inorganic additives.... Such fiber is substantially free of titanium dioxide (TiO_2) or other metal-based opasifying agents..." (page 14, lines 10-14). Thus, Appellant's polyester fibers are different from those used by DEAN, which are produced used metallic catalysts and which may include titanium dioxide.

Even if, for the sake of argument, one assumed that DEAN's polyester were equivalent to that being claimed by Appellant, Appellant does not believe that there is sufficient motivation to combine the DEAN reference with the PALEY, LANGLEY, and MORIN references, as previously discussed. Appellant has already addressed the lack of motivation to combine PALEY, LANGLEY, and MORIN. The addition of DEAN to the rejection does not overcome the shortcomings of the previous combination.

Appellant submits that the suggestion that the claimed invention is obvious in light of the above references is improper based on hindsight. Court decisions criticizing improper use of hindsight reconstruction are plentiful.

> Decomposing an invention into its constituent elements, finding each element in the prior art, and then claiming that it is easy to reassemble these elements into the invention, is a forbidden ex post analysis. *In re Mahurkar Patent Litigation*, 831 F. Supp. 1354, 28 USPQ 2d 1801 (N.D. Ill. 1993).

Regarding Claim 5, there is provided a low contaminant cleanroom wiper made of polyester filaments that are substantially free of inorganic ionic additives, where the cleanroom wiper has a discontinuous fused border zone inboard of, and parallel to, at least two perimeter edges of the cleanroom wiper. Appellant has provided arguments herein as to the inappropriateness of the combination of PALEY, LANGLEY, and MORIN to teach a cleanroom wiper having discontinuous fused border zones. In addition, Appellant has provided arguments herein as to the failure of the DEAN reference to adequately teach the production of a polyester that is substantially free from inorganic ionic additives. Based on these arguments, Appellant believes that no *prima facie* case of obviousness has been made that supports the rejection of Claims 5-14 and 37 over this combination of references, and Appellant respectfully requests that such rejection be reversed.

Regarding Claim 19, there is provided a low contaminant cleanroom wiper made of polyester filaments that are substantially free of inorganic ionic additives, where the cleanroom wiper has a plurality of perimeter edges, at least one which has a folded double layer border and a discontinuous fused attachment zone inboard of the folded double layer border. Appellant has provided arguments herein to support the position that the PALEY, LANGLEY, MORIN, and DEAN references were inappropriately

combined in making this rejection and that the combination of references fails to teach all of the limitations of Appellant's claims. Appellant further notes that nothing in any of PALEY, LANGLEY, MORIN, or DEAN teaches the use of a folded double layer border, regardless of the border attachment construction (continuous or discontinuous). Accordingly, Appellant believes that no *prima facie* case of obviousness has been made that supports the rejection of Claims 19-28 and 38 over this combination of references, and Appellant respectfully requests that such rejection be reversed.

B. Claims 5-14 and 19-31 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 4,888,229 to PALEY et al., US Patent to 4,938,817 to ROCKWELL, Jr., and further in view of US Patent 6,139,954 to DEAN et al.

The Office's position is essentially as follows:

PALEY et al. discloses a wiper for reducing particulate contamination, which otherwise might result from the use of the wiper in a controlled environment, such as that maintained in a cleanroom, the wiper being of the type constructed at least partially from a thermoplastic fabric material. The wiper provides a fused border in the material along the peripheral edges of the wiper and extends inwardly into the wiper.

While PALEY teaches a plurality of fused perimeter edges, it teaches a continuous fused border zone. It fails to teach the discontinuous fused border zone with discrete fusion points formed by localized melt fusion.

ROCKWELL discloses a roll towel made from cotton / polyester or polyester material and teaches the use of an ultrasonically bonded boundary edge disposed on the sides of the textile surface. The ultrasonically bonded boundary edges preferably have a discontinuous brick-like pattern. Such a discontinuous brick-like pattern is believed to provide exceptional flexibility.

It would have been obvious to modify the wiper and provide it with a discontinuous boundary edge, with the motivation of providing the wiper of PALEY with exceptional flexibility as disclosed by ROCKWELL.

However, the prior art cited is silent to the use of polyester free of inorganic additives.

DEAN teaches fiber made from polyesters used as binder fibers for nonwovens, textile and industrial yarns and fabrics. The polyester taught by DEAN does not

contain antimony catalytic materials, and it teaches that these polymers are clear and non-opaque. Since it is known that polyester is usually manufactured using metallic catalysts, usually compounds of aluminum and antimony, in finite amounts, and that delusterants such as titanium dioxide are often applied to alter the appearance of the completed product, DEAN's polyester will equate to the polyester substantially free of inorganic ionic additives.

Therefore, it would have been obvious to modify the cleanroom wiper and provide it with a polyester that does not contain any antimony catalytic materials and that is clear and non-opaque with the motivation of avoiding having particles shed from polyester wipers that contain these metallic contaminants.

The PALEY reference has been discussed above. PALEY does not suggest the use of discontinuous fused border areas. For this teaching, the Examiner relies on the disclosure of ROCKWELL, JR. ROCKWELL, JR. describes a continuous roll towel for use in a restroom facility, wherein the roll towel has ultrasonically bonded boundary edges that are discontinuous. PALEY and ROCKWELL have been further combined with DEAN to arrive at what the Office believes is the presently claimed subject matter.

As enunciated by the Supreme Court in *Graham v. John Deere Co.*, the first step taken in analyzing the obviousness of claimed subject matter under 35 U.S.C. 103 is the determination of the scope and content of the prior art. *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). This step is rooted in the statutory requirement that obviousness be determined from the standpoint of "a person having ordinary skill in the art to which [the claimed] subject matter pertains" and is often couched in terms of whether or not the art is analogous to the claimed invention. *In re Clay*, 966 F.2d 656, 658-659, 23 U.S.P.Q.2d 1058, 1060 (Fed. Cir. 1992).

A reference is analogous to the claimed subject matter, and forms part of the "prior art" considered in determining obviousness, only if (a) the reference is from the same field of endeavor as that in which the inventor of the claimed subject matter was working, or (b) the reference is reasonably pertinent to the particular problem with which the inventor was faced. *Id.* A reference is reasonably pertinent to a particular problem if "it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *Id.*, 966 F.2d at 659, 23 U.S.P.Q.2d at 1061. In the present case, the ROCKWELL patent cannot be considered analogous to the presently claimed subject matter.

The ROCKWELL reference is directed to a polyester roll towel for use, typically, in public restroom facilities. The Office has suggested that the roll towel of ROCKWELL and the cleanroom wiper of PALEY are both wiping cloths and are, therefore, from the same field of endeavor. Appellant respectfully disagrees.

Appellant's field of endeavor is wiping cloths that meet substantially all of the specifications for use in cleanrooms. Cleanroom specifications are understandably much more stringent than those for wipers used in public restrooms, particularly regarding the amount of particulate contaminants that are acceptable. In a public restroom setting, where roll towels are typically used, particulate contamination is not only an unrecognized issue, but an inconsequential one.

Thus, Appellant believes that there is no teaching within the references to combine elements in the manner suggested by the Office, especially when the PALEY reference is directed to the field of endeavor and to the same problem addressed by Appellant and when the PALEY reference teaches away from the solution claimed by Appellant. One

who had considered the teachings by PALEY of a cleanroom wiper with a continuous fused border would not ignore those teachings in favor of ROCKWELL, JR., which is directed to a continuous roll towel, for an alternative border configuration. Specifically, there is no teaching or suggestion in ROCKWELL, JR. that a discontinuous fused border would eliminate the problem of particulate contamination from the fabric material itself, because, as mentioned above, reduction of particulate contamination is unrecognized by ROCKWELL as a problem to be solved.

The Office has suggested that the motivation to combine PALEY with ROCKWELL is a desire to create a more flexible wiping cloth. However, there is nothing in the PALEY reference that suggests that greater flexibility is desired. PALEY teaches a cleanroom wiper where the edges are fused over an area "small enough to retain the desired degree of pliability in the wiper" (Col. 3, lines 43-44).

Further, the PALEY reference is unequivocal in its position that a continuous fused edge is the solution to the problem of loose fibers from the cut edges of the wiper. PALEY discloses that, within the continuous fused border, "all of the severed segments are captured and retained throughout the useful service life of the wiper" (Col. 3, lines 32-34). The reference further provides a formula for determining the distance D that the fused area should cover (D = 7L, where L is the length of a relaxed loop). (Col. 3, line 47 and Col. 2, line 63)

In re Napier, 55 F.3d 610, 34 USPQ 2d 1782, 1784 (Fed. Circ. 1995) states, "The motivation to modify the prior art must flow from some teaching in the art that suggests the desirability or incentive to make the modification needed to arrive at the claimed invention." Appellant contends that no such teaching exists and, because the PALEY

reference, in fact, teaches away from the proposed modification by its insistence on a continuous fused border, a rejection based on a combination of PALEY and ROCKWELL should be reversed.

The Office has further combined the DEAN reference with PALEY and ROCKWELL for a teaching of the use of polyester free from inorganic ionic additives, suggesting that it would have been obvious to modify the wiper of PALEY using the discontinuous border of ROCKWELL and using the polyester of DEAN.

As discussed above, DEAN's polyester is not equivalent to that presently claimed by Appellant. DEAN does not, in fact, teach or suggest a polyester that is free of inorganic ionic additives, as is presently claimed. Specifically, DEAN uses metallic catalysts, including titanium, which is explicitly excluded from the presently claimed polyester.

Even if DEAN's polyester were equivalent to that being claimed by the Appellant for its cleanroom wipers, Appellant does not believe that there is a motivation to combine the DEAN reference with the PALEY and ROCKWELL references. The Office has suggested that the motivation for combination is the desire to form a cleanroom wiper substantially free of inorganic ionic additives that has increased flexibility (due to the discontinuous fused border).

Appellant has already addressed the lack of motivation to combine PALEY and ROCKWELL. Appellant can find no suggestion or teaching in either the PALEY or ROCKWELL references, which would lead one of ordinary skill in the art to include DEAN's specialized polyester into one of the respective structures. While PALEY teaches the reduction of particulate contamination from the fibers of the wiper itself,

PALEY does not recognize contamination that may be created from inorganic compounds used to create the wiper fabric. Likewise, ROCKWELL provides no teaching of inorganic contamination; as has been mentioned previously, ROCKWELL does not recognize the issue of particulate contamination at all.

Lacking recognition of the problems that inorganic ionic additives may cause in a cleanroom environment, it is difficult to imagine that one of skill in the art would use the teachings of DEAN to modify the cleanroom wiper of PALEY (or PALEY as modified by the teachings of ROCKWELL). Furthermore, even if DEAN were incorporated into the previous references, the resulting yarns used in the cleanroom wiper would likely contain titanium dioxide, a compound expressly excluded from the yarns preferred and claimed by Appellant.

Regarding Claim 5, there is provided a low contaminant cleanroom wiper made of polyester filaments that are substantially free of inorganic ionic additives, where the cleanroom wiper has a discontinuous fused border zone inboard of, and parallel to, at least two perimeter edges of the cleanroom wiper. Appellant has provided arguments herein as to the inappropriateness of the combination of PALEY and ROCKWELL to teach a cleanroom wiper having discontinuous fused border zones. In addition, Appellant has provided arguments herein as to the failure of the DEAN reference to adequately teach the production of a polyester that is substantially free from inorganic ionic additives. Based on these arguments, Appellant believes that no *prima facie* case of obviousness has been made that supports the rejection of Claims 5-14 over this combination of references, and Appellant respectfully requests that such rejection be reversed.

Regarding Claim 19, there is provided a low contaminant cleanroom wiper made of polyester filaments that are substantially free of inorganic ionic additives, where the cleanroom wiper has a plurality of perimeter edges, at least one which has a folded double layer border and a discontinuous fused attachment zone inboard of the folded double layer border. Appellant has provided arguments herein to support the position that the PALEY, ROCKWELL, and DEAN references were inappropriately combined in making this rejection and that the combination of references fails to teach all of the limitations of Appellant's claims. Appellant further notes that nothing in any of PALEY, ROCKWELL, or DEAN teaches the use of a folded double layer border, regardless of the border attachment construction (continuous or discontinuous). Accordingly, Appellant believes that no *prima facie* case of obviousness has been made that supports the rejection of Claims 19-28 over this combination of references, and Appellant respectfully requests that such rejection be reversed.

Regarding Claim 29, there is provided a low contaminant cleanroom wiper made of polyester filaments that are substantially free of inorganic ionic additives, where the cleanroom wiper has a plurality of perimeter edges, at least one which has a folded double layer border and a fused attachment zone inboard of the folded double layer border and at least one other of which has a thermally sealed edge and a discontinuous fused border zone. With respect to Claims 29-31, Appellant notes that nothing in any of PALEY, ROCKWELL, or DEAN teaches the use of a folded double layer border, regardless of the border attachment construction (continuous or discontinuous). Accordingly, Appellant believes that no *prima facie* case of obviousness has been made that supports the rejection of Claims 29-31 over this combination of references, and Appellant respectfully requests that such rejection be reversed.

C. Claims 37-38 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 4,888,229 to PALEY et al., US Patent to 4,938,817 to ROCKWELL, Jr., and US Patent 6,139,954 to DEAN et al., and further in view of US Patent 6,189,189 to MORIN et al.

The Office's position is essentially as follows:

> The prior art fails to teach heat-setting the textile fabric at a temperature of from 180 °F to 300 °F. MORIN et al. discloses a method of manufacturing a polyester textile fabric having a relatively low level of particulate contamination and high absorbency by heat-setting the fabric at a temperature of 300 °F or less. The reference teaches a method of manufacturing a textile fabric for use in a cleanroom, the method having the steps of constructing a knitted or woven fabric from polyester yarn, heat-setting the fabric at a temperature of from 180 °F to 300 °F, and cutting the fabric to form the desired article; wherein the polyester fiber has not been heated above the temperature of 300 °F.
>
> MORIN also teaches the reduction of non-volatile residues to less than 0.005 grams/sq. meter, and even less than 0.003 grams/sq. meter as measured by short-term extraction. Since MORIN teaches the importance of having reduced non-volatile residues in a cleanroom wiper and also teaches the use of polyester yarns, it is reasonable to presume that MORIN's invention would provide polyester that is substantially free of inorganic ionic additives in order to provide a wiper with reduced non-volatile residues.
>
> It would have been obvious to modify the cleanroom wiper and provide it with a method of heat-setting the fabric at a temperature of 300 °F or less with the motivation of providing it with dimensional stability and to provide a polyester fabric with low particulate, since it is believed that heating the polyester above 300 °F causes low molecular weight polymers to blossom to the surface of the polyester fibers, where they crystallize into small particles.

The combination of PALEY, ROCKWELL, and DEAN has been discussed above with regard to Claims 5 and 19, from which Claims 37 and 38 depend, respectively. As has been discussed, Appellant believes that the PALEY, ROCKWELL, and DEAN references were inappropriately combined in rejecting Claims 5 and 19, and that the combination of references fails to teach all of the limitations of Appellant's claims.

The MORIN reference has been used to teach heat-setting polyester yarns at a temperature between 180 °F and 300 °F and not heating them above a temperature of 300 °F.

Regarding Claim 37, which depends from Claim 5 and contains all of the limitations thereof, Appellants have discussed the inappropriate use of the PALEY, ROCKWELL, and DEAN references to reject Claim 5. Without such combination, the additional teachings of MORIN are insufficient to arrive at the claimed invention. MORIN does not teach a cleanroom wiper with a discontinuous fused border zone on at least two edges. Accordingly, Appellant believes that no *prima facie* case of obviousness has been made that supports the rejection of Claims 37 over this combination of references, and Appellant respectfully requests that such rejection be reversed.

Regarding Claim 38, which depends from Claim 19 and contains all of the limitations thereof, Appellants have discussed the shortcomings of the combination of PALEY, ROCKWELL, and DEAN, in teaching a cleanroom wiper free from inorganic ionic additives and having at least one folded double layer border and a discontinuous fused attachment zone. MORIN does not overcome the shortcomings of this combination of references.

Nothing in the MORIN reference teaches the use of a folded double layer border, regardless of the attachment means (continuous or discontinuous). Accordingly, Appellant believes that no *prima facie* case of obviousness has been made that supports the rejection of Claim 38 over this combination of references, and Appellant respectfully requests that such rejection be reversed.

CONCLUSION

For the reasons set forth above, Appellant respectfully submits that the rejections of Claims 5-14, 19-31, 37, and 38 are improper. Reversal of all rejections discussed in this Appeal is hereby requested.

The Commissioner is hereby authorized to deduct the Appeal Brief fee of $500 from Deposit Account No. 04-0500.

This Appeal Brief is accompanied by a Petition for Extension of Time (4 months), extending the period for response to June 12, 2006. The Commissioner is authorized to withdraw any additional fees that may be required from Deposit Account No. 04-0500.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1-4. (Cancelled)

5. (Previously presented) A low contaminant wiper suitable for use in a cleanroom environment and being constructed of a low contaminant textile fabric having a machine direction and a cross-machine direction, said fabric being formed from a multiplicity of yarns made of polyester filaments, the low contaminant wiper comprising: an interior and a plurality of perimeter edges disposed in surrounding relation to the interior and at least one discontinuous fused border zone disposed inboard of and extending substantially parallel to at least two of the perimeter edges, wherein each of said discontinuous fused border zones comprises a plurality of substantially discrete fusion points formed by localized melt fusion of said thermoplastic filaments such that said discrete fusion points are disposed within a matrix of unmelted material, and wherein said polyester filaments are substantially free of inorganic ionic additives, such that complete combustion of said polyester filaments yields an ash content of not greater than about 0.1% of the initial weight of said polyester filaments.

6. (Original) The wiper according to claim 5, wherein said textile fabric is selected from the group consisting of knit fabric, woven fabric and nonwoven fabric.

7. (Original) The wiper according to claim 6, wherein the yarns forming the textile fabric have a linear density in the range of about 15 to about 250 denier.

8. (Original) The wiper according to claim 7, wherein said substantially discrete fusion points within said discontinuous fused border zone are ultrasonically induced.

9. (Original) The wiper according to claim 7, wherein said substantially discrete fusion points are of elongate geometry arranged in end to end relation in a plurality of rows extending substantially parallel to said perimeter edge.

10. (Original) The wiper according to claim 9, wherein the discrete fusion points are staggered in relation to the discrete fusion points in adjacent rows such that a brickwork pattern is formed.

11. (Previously presented) The wiper according to claim 5, wherein the wiper is quadrilateral in configuration and wherein a first discontinuous fused border zone is disposed inboard of and substantially parallel to a first perimeter edge and wherein a second discontinuous fused border zone is disposed inboard of and substantially parallel to a second perimeter edge in opposing relation to said first perimeter edge.

12. (Original) The wiper according to claim 11, wherein the first and second perimeter edges extend in the cross-machine direction of the textile fabric.

13. (Original) The wiper according to claim 11, wherein a third discontinuous fused border zone is disposed inboard of and substantially parallel to a third perimeter edge and wherein a fourth discontinuous fused border zone is

disposed inboard of and substantially parallel to a fourth perimeter edge in opposing relation to said third perimeter edge.

14. (Original) The wiper according to claim 13, wherein the first and second perimeter edges extend in the cross-machine direction of the textile fabric and wherein the third and fourth perimeter edges extend in the machine direction of the textile fabric.

15-18. (Cancelled)

19. (Previously presented) A low contaminant wiper suitable for use in a cleanroom environment and being constructed at least partly of a low contaminant textile fabric having a machine direction and a cross-machine direction, said fabric being formed from a multiplicity of yarns including polyester filaments, the low contaminant wiper comprising: an interior and a plurality of perimeter edges disposed in surrounding relation to the interior wherein at least one of said perimeter edges comprises a folded double layer border and a discontinuous fused attachment zone disposed inboard of the folded double layer border, wherein said discontinuous fused attachment zone is formed by melt fusion of said polyester filaments, and wherein said polyester filaments are substantially free of inorganic ionic additives, such that complete combustion of said polyester filaments yields an ash content of not greater than about 0.1% of the initial weight of said polyester filaments.

20. (Original) The wiper according to claim 19, wherein said textile fabric is selected from the group consisting of knit fabric, woven fabric and nonwoven fabric.

21. (Original) The wiper according to claim 20, wherein the yarns forming the textile fabric have a linear density in the range of about 15 to about 250 denier.

22. (Original) The wiper according to claim 21, wherein said fused attachment zone is ultrasonically induced.

23. (Previously presented) The wiper according to claim 19, wherein said fused attachment zone comprises a plurality of substantially discrete fusion points formed by localized melt fusion of said thermoplastic filaments such that said discrete fusion points are disposed within a matrix of unmelted material.

24. (Original) The wiper according to claim 23, wherein said substantially discrete fusion points are of elongate geometry arranged in end to end relation in a plurality of rows extending substantially parallel to said double layer border.

25. (Original) The wiper according to claim 24, wherein the discrete fusion points are staggered in relation to the discrete fusion points in adjacent rows such that a brickwork pattern is formed.

26. (Previously presented) The wiper according to claim 19, wherein the wiper is quadrilateral in configuration and wherein a first folded double layer border

defines a first perimeter edge and wherein a second folded double layer border defines a second perimeter edge in opposing relation to said first perimeter edge.

27. (Original) The wiper according to claim 26, wherein the first and second perimeter edges extend in the machine direction of the textile fabric.

28. (Original) The wiper according to claim 26, wherein a third folded double layer border defines a third perimeter edge and wherein a fourth folded double layer border defines a fourth perimeter edge in opposing relation to said third perimeter edge.

29. (Previously presented) A low contaminant wiper suitable for use in a cleanroom environment and being constructed at least partly of a low contaminant textile fabric having a machine direction and a cross-machine direction, said fabric being formed from a multiplicity of yarns including polyester filaments, the low contaminant wiper comprising: an interior and four perimeter edges disposed in surrounding relation to the interior wherein at least one of said perimeter edges comprises a folded double layer border and a fused attachment zone disposed inboard of the folded double layer border, wherein said fused attachment zone is formed by melt fusion of said polyester filaments and wherein at least one other of said perimeter edges comprises a thermally sealed edge and a discontinuous fused border zone extending inwardly from said thermally sealed edge wherein said discontinuous fused border zone comprises a plurality of substantially discrete fusion points formed by localized patterned melt fusion of said polyester filaments such that said discrete fusion points are disposed within a matrix of unmelted material, and wherein said polyester filaments are

substantially free of inorganic ionic additives, such that complete combustion of said polyester filaments yields an ash content of not greater than about 0.1% of the initial weight of said polyester filaments.

30. (Original) The wiper according to claim 29, wherein the wiper is of substantially right-angled quadrilateral configuration and wherein a first discontinuous fused border zone is disposed inboard of and substantially parallel to a first perimeter edge and wherein a second discontinuous fused border zone is disposed inboard of and substantially parallel to a second perimeter edge in opposing relation to said first perimeter edge and wherein a first folded double layer border defines a third perimeter edge extending between said first perimeter edge and said second perimeter edge and wherein a second folded double layer border defines a fourth perimeter edge in opposing relation to said third perimeter edge.

31. (Original) The wiper according to claim 30, wherein the first and second perimeter edges extend in the cross-machine direction of the textile fabric and wherein the third and fourth perimeter edges extend in the machine direction of the textile fabric.

32-36. (Cancelled)

37. (Previously presented) The wiper according to claim 5, wherein said textile fabric is subjected to heat setting at a temperature of from 180 to 300 degrees Fahrenheit and wherein said yarns have not been heated above a temperature of 300 degrees Fahrenheit.

38. (Previously presented) The wiper according to claim 19, wherein said textile fabric is subjected to heat setting at a temperature of from 180 to 300 degrees Fahrenheit and wherein said yarns have not been heated above a temperature of 300 degrees Fahrenheit.

IX. EVIDENCE APPENDIX

There is no additional evidence that Appellant would like to submit.

X. RELATED PROCEEDINGS APPENDIX

There have been no decisions rendered by a court or by the Board in any proceeding which may be related to, which may directly affect or be directly affected by, or which may have a bearing on the Board's decision in the pending appeal.